DEC STD 119-0 Digital Product Safety - Introduction and General Requirements

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ABSTRACT: This standard defines the safety criteria for all Digital products. Policies for Product Safety submittal and certification, buyout products, and prototype products are specified.

APPLICABILITY: This standard applies to all products sold by Digital. For markets and products that are not specifically addressed in this document, such as software or furnishings, the general principles of safety stated within IEC 950, Safety of Information Technology Equipment Including Electrical Business Equipment shall apply. The requirements of this revision apply to all products in Phase 0 or Phase 1 on the effective date of this standard. See DEC STD 119-0, subhead 4.1 Product Safety Standards Policy for more information.

STATUS: APPROVED 15-Feb-1990; use VTX SMC for current status.

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1 INTRODUCTION

1.1 PURPOSE

This standard defines the safety policy and procedures to be applied to all Digital products. It also includes specific criteria for the the prevention of hazards and for the safety of operator and service personnel.

1.2 SCOPE

This standard applies to information technology equipment designed to be operated continuously under conditions of normal use. For the purposes of this standard, a product includes:

- hardware
- software
- manuals
- sales/marketing literature
- cables and cords
- service information
- packaging
- accessories
- consumables

This standard specifies requirements intended to ensure the safety of the operators and servicemen.

This standard is intended to ensure the safety of installed equipment, whether such installed equipment consists of independent units or a system of interconnected units, subject to installation and maintenance in the manner specified by Digital.

Conformance to this standard will result in compliance with the requirements for safety of information technology equipment in all geographic areas in which Digital ordinarily does business.

Additional safety requirements are placed on equipment that connects directly to modems or to telephone lines. This information is contained in *DEC STD 053-0 Interface between Data Circuit-Terminating Equipment and the Public Switched Telephone Network (PSTN) in the United States and Canada* and *DEC STD 053-1 Interface Between Data Circuit-Terminating Equipment and the Public Switched Telephone Network (PSTN) Worldwide*

Requirements for industrial control equipment can be found in *DEC STD 080-0 Digital Product Safety Industrial Control Equipment - Introduction and General Requirements*

Specifically, this standard does not cover:

a. Equipment intended for operation outside the environmental conditions of Class A, Class B, and Class C as defined in *DEC STD 102-1 Environmental Standard for Computers and Peripherals - Temperature, Humidity, and Altitude Test Requirements*.

b. Support equipment such as air-conditioning, fire detection or fire extinguishing systems, and power supply systems such as motor generator sets or building branch circuit wiring, whether supplied by Digital or others.

c. Equipment intended for direct or indirect contact with medical patients. Much lower leakage currents and other criteria are required.

d. Special product categories covered by other safety requirements such as military, medical, industrial, fire and signaling, laboratory, nuclear, air traffic control, television receivers, or video equipment.

Product applications not covered by this standard will require special review of the product development project by the Product Safety Engineer (PSE) to the requirements of the applicable standards and regulations for that product category. This review must be performed both to the requirements of DEC STD 119 and other applicable standards and regulations. Specific areas of departure must be documented and approved in accordance with the requirements of *DEC STD 005-2 Hardware Products Non-Compliant with Digital Standards*.

Compliance with this standard implies that the design meets the requirements of all relevant sections and, for design features which affect safety and which are not specifically covered, the design is in accord with the general principles set forth in Principles of Safety within the Introduction to IEC 950 *Safety of Information Technology Including Electrical Business Equipment* .

The need for requirements to cope with a new situation should be brought promptly to the attention of Corporate Product Safety and Regulations (CPS & R).

A product complying with the text of this standard will not necessarily be acceptable, if when examined and tested, the product is found to have other attributes that impair the level of safety addressed by these requirements.

2 RESPONSIBILITIES

In keeping with Digital's concern for safety, every Digital employee involved in the design, development, and manufacture of Digital hardware products shall ensure that Digital's products meet the safety requirements established and defined by this standard.

The policy of Digital Equipment Corporation is to design, manufacture, and maintain safe and reliable products that meet or exceed specified safety requirements applicable to such products. In line with this policy, Digital shall:

a. Design and test its products to the specified requirements.

b. Use the services of external testing and inspection agencies, when appropriate, such as Underwriters Laboratory (UL), to ensure compliance with product safety requirements.

c. Maintain and monitor the necessary information feedback system to determine the safety performance of its products and react in a responsible manner to any indications of hazardous events.

d. Make reasonable efforts to keep informed of developments in the field of product safety. Such efforts include participation in organizations such as:

CBEMA (Computer and Business Equipment Manufacturers Association)

ITAC (Information Technology Association of Canada)
ECMA (European Computer Manufacturer's Association)
UL IAC (Underwriters Laboratory Industry Advisory Conference)
CSA (Canadian Standards Association)
SAA (Standards Association of Australia)
EEA (Electrical and Business Association)

Specific details around implementation of this policy are provided in EL-00424-00, *Digital Product Safety Handbook*.

3 PRODUCT APPROVAL

All products offered for sale by Digital fall under the authority of Corporate Product Safety and Regulations.

All hardware products and associated documentation shall be reviewed against this standard in accordance with the requirements of the Product Safety Standards Policy under subheads 3.1 and 3.2. The submittal of products for certification to external product safety standards and the use of follow-up inspection programs for ongoing product safety control shall be in accordance with the Product Safety Submittal and Certification Policy under subheads 3.3 and 3.4. See also EL-00424-00, *Digital Product Safety Handbook*.

3.1 PRODUCT SAFETY STANDARDS POLICY

The policy of Digital Equipment Corporation regarding product safety standards is as follows.

a. All new products must be reviewed, tested to, and meet the requirements of the latest published revision of DEC STD 119.

NOTE

DEC STD 119 contains the product safety design criteria and test procedure requirements for Digital products. Compliance with DEC STD 119 ensures compliance with external standards.

b. Existing products must be reviewed, tested to, and meet the latest published revision of DEC STD 119 when:

1. Mandated by changes in local law
2. The product is part of a new design
3. The changes are required by third party certification agencies
4. A safety related ECO is performed to the product
5. The product is value engineered and the value engineering generates a new product variation or includes a change which could affect the safety of the product

c. Effective Date of Standard

This revision of the DEC STD 119 applies to all products in Phase 0 or Phase 1 on the approval date of the standard. See *DEC STD 028-0 Phase Review Policy* for more information.

Requirements that are mandated by the external agencies are applicable to all products that are being manufactured in accordance with the date specified by those agencies.

d. Responsibility for Upgrading Old Products Used in New Designs

It is the responsibility of the product owner to fund and support any design changes needed to bring an existing product up to latest design requirements for use in a new design.

Exception: If an old product is going to be used in a new design, and that product has been scheduled for retirement, it is the responsibility of the new product developer to fund and support any design changes needed to bring the old product into compliance.

e. Product safety review and testing of new products and engineering change orders (ECOs) are the responsibility of Product Management and the Engineering groups that own the product.

3.2 GUIDELINES FOR INTERPRETATION

The following guidelines are provided to ensure clarity in the interpretation of the Product Safety Standards Policy defined under subhead 3.1 and to furnish the background information needed to implement this policy.

a. ECOs most likely to affect the safety of the product are ECOs involving any of the following:

1. Primary circuit components such as line filters, circuit breakers, switches, fuses, and fuse holders
2. Controlled components
3. A primary power circuit board
4. A power supply transformer
5. The electrical rating of a component
6. The construction of an enclosure
7. Any component or item listed on the critical parts list of the Digital Product Safety Report for the product

If an ECO is performed to a product, and the ECO could affect the safety of the product, only that portion of the product that is likely to be affected must be reviewed against the latest published revision of DEC STD 119.

b. The process for reviewing existing products to support agency mandated changes is as follows.

1. Corporate Product Safety and Regulations develops and provides a list of affected products to the Product Business Units (PBUs) for review.
2. The PBUs respond with an edited list of products that will continue to be manufactured beyond the date established by the certification agency.
3. The products are reviewed by Product Safety Engineering groups designated by Corporate Product Safety and Regulations to establish the changes and testing required for continued certification.
4. The review information is provided to the PBU that must implement the needed changes or retire the product by the required time.

3.3 PRODUCT SAFETY SUBMITTAL AND CERTIFICATION POLICY

Digital Equipment Corporation's policy for the submittal of products for certification to external product safety standards and use of follow-up inspection programs for ongoing product safety control is as follows.

a. All products marketed or sold by Digital Equipment Corporation, or its subsidiaries, shall be:

   1. Submitted to and approved by appropriate external agencies and/or test houses.
   2. Controlled through external follow-up inspection program(s).

NOTE

At least one external agency approval of the product and its variants is required.

b. Compliance verification of this policy shall be in accordance with the following Digital standards.

   1. *DEC STD 060-0 Design and Certification of Hardware Products to National and International Regulations and Standards - Policies and Procedures*
   2. *DEC STD 062-0 Product Submittal to Regulatory Agencies*

c. The requirements for submittals of Digital products to external agencies and/or test houses and follow-up inspection programs by external agencies and/or test houses are shown in Table 1. Submittals of Digital products to external agencies or test houses or arrangements for follow-up inspection programs other than those listed in Table 1 must be approved by Corporate Product Safety and Regulations.

d. External agency submittals for Computer Special Systems (CSS) Category A and Category B products are governed by this Product Safety Submittal and Certification Policy. External agency submittals for CSS Category C Products are governed by CSS PRO 107, *Engineering Product Safety Procedure*.

Table 1: Requirements for Product Safety Submittal and Follow-up Programs By Country

Country	Standard	Agency	Follow-up	Certification Description
U.S.	UL 1950	UL	UL	Listing for standalone products; Recognition for components or products sold only as part of other products
Canada	CSA 950	CSA	Category or Model Certif.	Category Certification in approved manufacturing plants; Model certification in non-category certified plants
Algeria Australia Austria Belgium Denmark Egypt Finland France Germany Ireland Israel Italy Japan * Netherlands New Zealand Norway Portugal Saudi Arabia Spain Sweden Switzerland UK **	IEC 950	TUV, VDE, BSI, CSA, or UL	TUV, VDE, BSI, CSA, or UL	Submittal to more than one agency is at the discretion of the Product Manager. Certain office products preselected by the European Terminals and VAXstations Marketing Manager will also be submitted for acquisition of the TUV GS mark.

NOTES TO TABLE 1

The use of other certification and follow-up agencies requires the approval of Corporate Product Safety and Regulations.

Greece and Luxembourg are not listed as strategic countries in *DEC STD 066-3 Digital Policy for Designing Products for All Countries Designated as Strategic Markets* but are members of the European Community (EC) and accept the same standards.

*** Listing to UL 1950, *Safety of Information Technology Equipment Including Electrical Business Equipment* instead of IEC 950 is acceptable in Japan.**

**** Some UK telecom products require approval to BS 6301, *Safety Requirements For Apparatus for Connection to British Telecommunications Networks*. Contact Paul Newman, NAC Global PTT Approvals, JANUS::NEWMAN.**

3.4 GUIDELINES FOR SUBMITTAL AND CERTIFICATION

a. The product submittals and follow-up inspection programs appropriate for each country where Digital markets its products are shown in Table 1. UL and CSA certifications are required at both the option and cabinet level. IEC certifications are required at the option level. Cabinet level IEC and European Norm (EN) certifications are optional but recommended, if all options are approved by the same certification agency. An option, in this case, is any product that is intended for desktop use or for installation in a Digital supplied cabinet.

b. The requirements for product submittals and follow-up inspection programs are both regulatory and market-driven.

c. Product variants to meet a reduced set of geographic requirements must be submitted, approved, and controlled by the appropriate external agency(ies) for those countries.

   While this is a relaxation of certification requirements, it is not a relaxation of safety requirements.

3.5 SOFTWARE

Software may have an impact on safety. In such cases, if specific requirements of *DEC STD 119-1 Digital Product Safety - Design Criteria* do not apply, the General Principles of Safety in the Introduction to IEC 950 shall apply.

NOTE

The use of CSA C22.2 No. 0.8, *Safety Functions Including Electronic Technology*, will generally be considered sufficient proof of safety.

3.6 BUYOUT PRODUCTS

3.6.1 Policy

The following Digital Product Safety Buyout Policy shall be followed. All stand-alone buyout products shall:

a. Be introduced with the minimum impact on time to market.

b. Continue to maintain Digital's reputation as a qualit supplier.

c. Minimize potential for costly product recalls and Digital's exposure to product liability suits.

d. Have a level of safety that is equivalent to Digital's internally designed products and as a minimum:

   1. Meet the safety requirements for the class of equipment set forth in UL, CSA, IEC, or other applicable nationally or internationally recognized standards.

   2. Have the same third party product safety certifications required for internally designed and manufactured products, and supply third-party supporting certification documentation to Digital personnel upon request.

   3. Be purchased under terms where:

      a. Safety compliance and documentation access provisions are included; and

b. Both Digital, and Digital's insurance companies that underwrite Digital's legal liability insurance coverage, have the right, but not the obligation, to audit the product and supplier's product safety program.

3.6.2 Responsibilities

The Corporate Risk Management Group shall ensure that there is a buyout approval policy in place and work with Corporate Product Safety and Regulations to develop policies and procedures.

Corporate Product Safety and Regulations shall maintain this policy and ensure that appropriate audits are performed.

Digital's Product Safety Engineering Groups shall determine whether buyout products meet an equivalent level of safety to Digital's Product Safety Standards.

The Purchasing Law Group shall ensure that appropriate contractual provisions reflecting Digital's Product Safety Buyout Policy are in place for buyout procurements.

Digital's Product Managers shall implement Digital's Product Safety Buyout Policy policy when buyout products are part of their product development strategy. Implementation shall include at a minimum:

a. Ensuring that a level of safety equivalent to that required of Digital's internally designed products is included in buyout products' purchase specifications;

b. Establishing, as part of the Project Management Team, a cognizant group Product Safety Engineer who will coordinate product safety issues throughout the corporation and with corresponding representatives for other geographies;
and

c. Working with Purchasing and Field Service Product Safety to ensure that the level of safety in the buyout product is acceptable for product servicing.

4 PROTOTYPE PRODUCTS

The following requirements apply to prototype equipment, pilot run products, and other products that have not completed the safety review process nor obtained the necessary certifications. Exceptions to this include products such as engineering prototypes that remain with the development group. This subhead is not a waiver of safety construction requirements.

a. Any known hazards must be corrected and products must comply with local laws.

b. Prototype products or product lots leaving the company must be reviewed by a Product Safety Engineer.

c. Customers or other personnel (such as operators at trade shows and software development houses) that receive prototype equipment shall be made aware of the equipments safety status.

d. Such equipment shall bear the label specified in *DEC STD 178-3 Digital Marking Requirements for Completed Products Intended to be Sold*, under Prototype Equipment. Additional issues may need to be pursued that are not covered by this standard, such as legal contracts, insurance, and customer agreements.

e. At the end of the field test period the equipment shall be:

   1. Returned to Digital; or
   2. Upgraded to the safety requirements of the regular production equipment and be acceptable to field service for maintenance; or
   3. Examined and approved by a Product Safety Engineer (this may occur before shipment to the customer) and be acceptable to field service for maintenance.

The Product Manager shall be responsible for the quantity and location of prototype equipment, both in house and outside, in the event that a safety recall is required.

If the above cannot be complied with, then the Law Department must be involved and a waiver per *DEC STD 066-2 Waivers to Digital Design Standards* is required.

APPENDIX A REFERENCED DOCUMENTS

A.1 EL-Class Digital Documents

EL-Class Number	Document Title
EL-00005-02	*DEC STD 005-2 Reporting Products Potentially Non-Compliant with Digital Design Standards*
EL-00028-00	*DEC STD 028-0 Phase Review Policy*
EL-00053-00	*DEC STD 053-0 Interface Between Data Circuit-Terminating Equipment and the Public Switched Telephone Network (PSTN) in the United States and Canada*
EL-00053-01	*DEC STD 053-1 Interface Between Data Circuit-Terminating Equipment and the Public Switched Telephone Network (PSTN) - Worldwide*
EL-00060-00	*DEC STD 060-0 Design of Hardware Products to National and International Regulations and Standards, Policies and Procedures*
EL-00062-00	*DEC STD 062-0 Product Submittal to Regulatory Agencies*
EL-00066-02	*DEC STD 066-2 Waivers to Digital Design Standards*
EL-00066-03	*DEC STD 066-3 Policy for Designing Products for All Countries Designated As Strategic Markets*
EL-00080-00	*DEC STD 080-0 Digital Product Safety Industrial Control Equipment - Introduction and General Requirements*
EL-00102-01	*DEC STD 102-1 Environmental Standard for Computers and Peripherals - Temperature, Humidity, and Altitude Test Requirements*
EL-00119-01	*DEC STD 119-1 Digital Product Safety - Design Criteria*
EL-00178-03	*DEC STD 178-3 Digital Marking Requirements for Completed Products Intended to Be Sold*
EL-00424-00	*Digital Product Safety Handbook*

Use VTX SMC to order copies of EL-class documents from Standards and Methods Control. Send distribution questions to JOKUR::SMC or call DTN: 234-4423.

A.2 Other Documents

Document Number	Document Title
CSS PRO 107	*CSS Formal Management Directive (FMD) - Engineering Product Safety Procedure DTN: 264-6027*

APPENDIX B RELATED DOCUMENTS

B.1 Other Digital Documents

Document Number	Document Title
EL-00001-00	*DEC STD 001-0 Management of Technical Standards and Related Documents*
EL-00002-00	*DEC STD 002-0 AC Power Wiring, Safety Grounding, Receptacle and Electrical Ratin g Information Requirements*
EL-00064-00	*DEC STD 064-0 Compliance with International Language Requirements*
EL-00102-00	*DEC STD 102-0 Environmental Standard for Computers and Peripherals - General Tes t Requirements*
EL-00102-03	*DEC STD 102-3 Physical Stability Requirements During Shipping and Handling*
EL-00119-02	*DEC STD 119-2 Digital Product Safety - Test Methods*
EL-00122-00	*DEC STD 122-0 AC Power Line Standard: Design Requirements and Guidelines*
EL-00122-01	*DEC STD 122-1 AC Power Line Standard - Measurement of AC Power Parameters*
EL-00136-00	*DEC STD 136-0 Digital Policy on Government-Regulated Materials in Digital Produc ts*
EL-00136-03	*DEC STD 136-3 Introduction and Review Process for Digital Chemical Products*
EL-00176-00	*DEC STD 176-0 Printed-Wiring Board Acceptance Criteria*
EL-00178-00	*DEC STD 178-0 Digital Identification Marking Requirements - Introduction*
EL-00178-01	*DEC STD 178-1 Digital Marking Requirements for Piece Parts*
EL-00178-02	*DEC STD 178-2 Digital Marking requirements for Subassemblies: Field Replaceable Units (FRU) and Non-Field Replaceable Units*
EL-00178-05	*DEC STD 178-5 Marking Symbology*
EL-00178-07	*DEC STD 178-7 Translations*
NO NUMBER	*Digital Product Safety Design Review Checklist*

B.2 Other Documents

Document Number	Document Title
16 CFR SUB D	*Flammable Fabrics Act*
16 CFR SUB E	*Poison Prevention Packaging Act*
21 CFR SUB J	*Radiological Health*
ANSI C95.1	*Safety levels with Respect to Human Exposure to radio Frequency Electromagnetic Fields, 300 Hz to 100 GHz*
ANSI C96.1	*Temperature Measurement Thermocouples*
AS 3100	*Definitions and General Requirements for Electrical Material and Equipment*
AS 3260	*Safety of Information technology Equipment Including Electrical Business Equipme nt*
AS 3300	*General Requirements for Household Electrical and Similar Appliances*

Document Number	Document Title
ASTM D396	*Specification for Fuel Oils*
ASTM E162	*Test for Surface Flammability of Materials Using a Radiant Heat Energy Source*
ASTM E84	*Surface Burning Characteristics of Building Materials*
BS 7002	*Safety of Information Technology Equipment Including Electrical Business Equipme nt*
BUNDESGESETZBL.1S173	*German X-ray Ordinance, Section 05 Clause Verordnung ub er den Schuz vor Schaden durch Rontgenstrahlen*
CSA C22.2 0	*General Requirements, Canadian Electric Code Part II*
CSA C22.2 0.4	*Bonding and Grounding of Electrical Equipment*
CSA C22.2 127	*Equipment Wires*
CSA C22.2 220	*Information Processing and Business Equipment*
CSA C22.2 66	*Specialty Transformers*
CSA C22.2 7	*Portable Electric Displays and Incandescent Lamp Signs*
CSA C22.2 77	*Motors with Inherent Overheating Protection*
CSA C22.2 950	*Safety of Information Technology Equipment Including Electrical Business Equipme nt*
CSA Z65	*Radiation Hazards from Electrical Equipment*
EN 60 320	*Appliance Couplers for Household and Similar General Purposes*
EN 60 950	*Safety of Information Technology Equipment Including Electrical Business Equipme nt*
HD 196 S1	*Plugs, Socket Outlets, and Couplers for Industrial Purposes*
HD 21.5 S2	*Polyvinyl Chloride Insulated Cables of rated Votages Up To and Including 450/750 V, Part 5: Flexible Cables*
HD 22.4 S2	*Rubber Insulated Cables of Rated Voltage Up To and Including 450/750V Part 4: Co rds and Flexible Cables*
HD 384	*Electrical Installations of Buildings*
HD 385 S2	*Test Methods for Insulations and Sheaths of Electrical Cables and Cords (Elastom eric and Thermoplastic Compounds)*
HD 482 S1	*Radiation Safety of Laser Products, Equipment Classification, Requirements and U ser's Guide*
IEC 252	*AC Motor Capacitors*
IEC 309	*Plugs, Socket Outlets, and couplers for Industrial Purposes*
IEC 320	*Appliance Couplers for Household and Similar General Purposes*
IEC 380	*Safety of Electrically-Energized Office Machines*
IEC 435	*Safety Requirements for Data Processing Equipment*
IEC 65	*Safety requirements for Mains Operated Electronic and related Apparatus for Hous ehold and Similar General Use*
IEC 825	*Radiation Safety of Laser Products, Equipment Classification, Requirements and U sers Guide*
IEC 85	*Recommendation for Classification of Materials for the Insulation of Electrical Machinery and Apparatus in Relation to Their Thermal Stability in Service*
NFPA 70	*National Electric Code (U.S.)*
NFPA 75	*Protection of Electronic Data Processing Equipment*
UL 114	*Office Appliances and Business Equipment*
UL 1310	*Direct Plug-In Transformer Units*

Document Number	Document Title
UL 1418	*Implosion-Protected Cathode Ray Tubes for Television-Type Appliances*
UL 1439	*Determination of Sharpness of Edges on Equipment*
UL 1642	*Lithium Batteries*
UL 547	*Thermal Protectors for Motors*
UL 723	*Test Method for Fire Hazard Classification of Building Materials*
UL 746C	*Polymeric Materials - Use in Electrical Equipment Evaluations*
UL 900	*Test Performance of Air Filter Units*
UL 94	*Tests for Flammability of Plastic Materials*
VDE 0805	*Safety of Information Technology Equipment Including Electricall–Operated Business Equipment*

B.3 Ordering Information

Following are the sources for documents not available from Standards and Methods Control.

- American National Standards Institute (ANSI),
  1430 Broadway, New York, NY 10018
  Telephone (212) 354-3300 x479
- American Society for Testing and Materials (ASTM),
  1916 Race Street,
  Philadelphia, PA 19103
- British Standards Institute,
  BSI Sales, Linford Wood,
  Milton Keynes, MK14 6LE, England
- Canadian Standards Association (CSA), Standards Sales,
  178 Rexdale,
  Ontario, Canada M9W1R3
  Telephone (416) 744-4044
- National Fire Protection Association (NFPA),
  Batterymarch Park, Quincy, MA 02269
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- Standards Association of Australia,
  Standards House,
  80 Arthur Street,
  North Sidney, NSW, Australia
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- Underwriters Laboratories, Inc. (UL), Publications Stock,
  33 Pfingsten Road, Northbrook, IL 60062
  Telephone (312) 272-8800, x2612 or x2622

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  Charlottenburg, Germany: or
  Technical Help to Exportes, British Standards Institution,
  Marylands Avenue, Hemel Hempstead, Herts, England

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